

USDA's Role in Nutrition Education and Evaluation

Jon P. Weimer
(202) 219-0882

USDA is committed to helping Americans eat more nutritious diets. USDA administers the domestic food assistance programs which are designed, in part, to help low-income people meet their basic nutritional needs. Another of USDA's major roles is to help people understand the relationship between food and health through sound, research-based nutrition education programs and information. While much evidence exists to support the contention that poor food choices are related to a number of health problems, evidence also suggests that many people are confused about what a nutritious diet is.

USDA spent \$295 million on nutrition education in fiscal 1994 (table 1). To ensure that the public is receiving maximum benefits from their tax dollars, it is important to objectively assess program effectiveness. USDA is taking steps to strengthen the evaluation of its nutrition education efforts.

USDA Provides Dietary Guidance...

USDA is the lead Federal department charged with providing nutrition education to the public. These nutrition education activities are predicated on sound nutrition research. USDA traditionally has focused on research specifying normal requirements for nutrients and determining food composition and nutrient bioavailability. The growth in understanding nutrient composition of foods, human nutrient needs, and the relationship of diet to health corresponds to an evolution of food guidance information made available by USDA.

The first USDA food guide in 1916 translated the emerging science of nutrition into national dietary recommendations. As more was learned about nutrition and health, vitamin and mineral requirements, and food consumption patterns of the population, food guides such as the Basic Seven (1946) and the Basic Four (1958) focused on choosing enough of the kinds of foods needed to provide the nutrients needed for good health.

The evolution of USDA's food guidance continued with the *Dietary Guidelines for Americans* in 1980. By this time, research had begun to indicate a connection between excessive consumption of certain dietary components—such as fat, saturated fat, cholesterol—and the risk of

some chronic diseases, such as heart disease. These guidelines, published in cooperation with the Department of Health and Human Services, suggested directional changes in the consumption of certain food components—reducing intake of fat, added sugar, sodium, and alcohol, and increasing the intake of starch and fiber.

The Dietary Guidelines have been revised and reissued in 1985, 1990, and 1995 based on expert review of relevant new research. USDA has also issued the Food Guide Pyramid, a graphic presentation to help consumers apply the Dietary Guidelines to make food choices for a healthy diet. The relationship between food, nutrition, and health expressed in this guidance material has served as a central theme in USDA's nutrition education and promotion activities.

USDA's Food and Consumer Service (FCS) provides funds and technical assistance for a variety of nutrition education efforts through programs such as the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); the National School Lunch Program; and the Nutrition Education and Training Program for school children and school foodservice personnel.

The Cooperative State Research, Education, and Extension Service has been involved in developing and overseeing nutrition education

The author is an agricultural economist with the Food and Consumer Economics Division, Economic Research Service, USDA.

Table 1

USDA's Support for Nutrition Education and Promotion Is Growing

Item	1990	1991	1992	1993	1994
<i>Million dollars</i>					
Expanded Food and Nutrition Education Program	58.2	60.5	60.5	60.5	61.4
Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) (State nutrition education estimate)	81.6	93.7	112.1	124.6	138.2
All other nutrition education and promotion activities	23.3	24.0	39.8	49.6	95.4
Total	163.1	178.2	212.4	234.7	295.0

Note: Years are fiscal years. Sources: USDA, *Report on USDA Human Nutrition Research and Education Activities—A Report to Congress*, April 1994. USDA, Office of Budget and Program Analysis, June 1995.

programs, including the Expanded Food and Nutrition Education Program (EFNEP). The program's Extension professionals train and supervise paraprofessionals to teach food and nutrition information and skills to low-income youth and families with young children. The paraprofessionals tailor their teaching to individual family needs, providing lessons on a one-to-one basis or in small-group sessions.

...And Monitors Dietary Status

Timely, reliable monitoring is a preface for evaluating nutrition education and gauging progress. Such monitoring activities look at the kinds and amounts of foods that Americans consume relative to their needs, providing data which help identify groups at nutritional risk and help devise strategies for improving diets and the food supply.

Approximately every decade since 1936, USDA has conducted national surveys on food consumption (the Nationwide Food Consumption Survey). These large-scale surveys have

recently been enhanced by the Continuing Survey of Food Intakes by Individuals (CSFII) and the Diet and Health Knowledge Survey (DHKS). The CSFII is a series of surveys conducted in 1985, 1989-91, and 1994-96 by USDA's Agricultural Research Service. Although smaller in scope than the 10-year surveys, the CSFII provides for continuous monitoring of the dietary status of the American population, including the low-income population, and measures dietary change between the 10-year surveys. The DHKS, which is a telephone follow-up to CSFII, measures attitudes and knowledge about diet and health among Americans.

Nutrition Education— a Multistep Process

Nutrition education can be viewed as a deliberate effort to improve nutritional wellbeing by providing information and other types of educational/behavioral interventions. Nutrition education does not exist in a vacuum. Rather, as described earlier, it is based on a multistep process, starting with the cre-

ation of basic research and continuing with monitoring activities to identify nutrition education information needs and appropriate target audiences.

The basic research and monitoring activities aid in developing dietary guidance materials for the general public and specified target groups. The nutrition education process attempts to increase people's awareness, and change their attitudes, knowledge and behavior, to enhance health status. The ultimate goal of nutrition education is not just imparting information, but rather changing behavior.

Difficult To Evaluate Nutrition Education

Evaluation of nutrition education efforts provides information to policymakers and/or program practitioners about the operation, implementation, or effectiveness of a program—determining whether a program is reaching its target population, whether it is functioning as planned, and whether it is having its intended impacts.

Studies generally show that nutrition education interventions produce sizable, consistent, and positive knowledge gains on the part of program participants. However, a 1992 article in the *Journal of Nutrition Education* states that 25 years of research reported in that publication conclude that nutrition knowledge has only a small effect on people's dietary behavior—the small effect perhaps due to inadequate conceptualization or measurement of either the knowledge or behavior. More research is needed about the factors that make people move from awareness to enhanced knowledge, to a changed attitude, and ultimately to changes in practices and behaviors.

The results of studies looking at the effects of nutrition education on behavior are somewhat inconsistent. Programs reported in the literature as successful in producing behavior change have the following characteristics: (1) While mass media cause participants to become more aware of new information, interpersonal channels (such as one-on-one or small-group approaches) produce more favorable behavioral outcomes; (2) interventions lasting more than 3 months are more successful in producing behavioral change than those in effect for less time; and (3) successful interventions are designed such that specific and measurable behavioral changes can be documented.

A key problem in evaluating nutrition education programs is specifying outcomes. For example, to gauge the effectiveness of a nutrition education intervention, should you be looking for changes in a target population's attitudes, knowledge, behavior, and/or health status? Can you assume, for example, that a discernible change in a person's knowledge about the relationship between diet and health will result in that person's making an appropriate change in behavior?

Outcomes of a nutrition education program vary to the degree they are proximate or close to the intervention itself, and that, in turn, has both measurement and policy implications (fig. 1). For example, learning curriculum-specific nutrition knowledge in a classroom is an outcome that occurs (and can be measured) fairly soon after the intervention. Outcomes that occur immediately after an intervention tend to have low policy relevance but are more likely to show a larger effect as a result of an intervention, and are easier to make the argument that the relationship is causal.

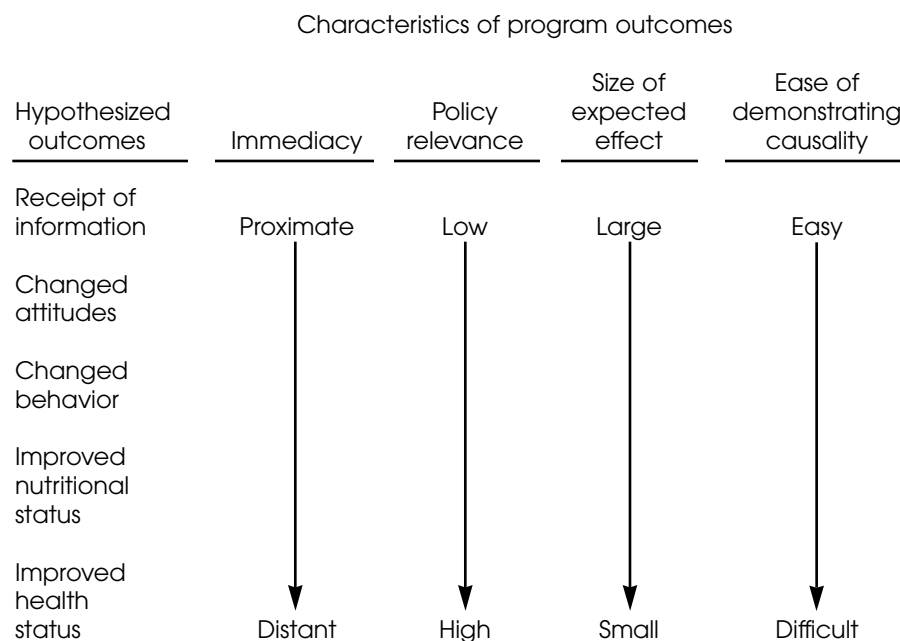
On the other hand, an outcome such as improved health status cannot be measured until quite some time after the intervention is conducted. It is these longer term outcomes that have higher policy relevance. For example, an improvement in health status is more policy relevant than is a change in knowledge about nutrition. However,

these distant outcomes are more likely to show only a small effect as a result of an intervention and it is considerably more difficult to demonstrate a causal link with the intervention, because many factors also could have influenced the end result between the time the nutrition education program was administered and when the measurement was taken. If no program effects are found for a distant outcome, this would not necessarily mean that the intervention was ineffective—perhaps a longer period of time and/or control for other factors might be needed before improvement in a distant outcome could be demonstrated.

Another aspect of nutrition education evaluation relates to the use of cost-benefit analysis—which quantifies the effects of a program and evaluates them relative to costs. Few cost-benefit analyses of nutrition education programs have been conducted, no doubt attributable in part

Figure 1

Policy-Relevant Nutrition Education Outcomes May Be Difficult To Link to Program



Source: Adapted from Robert St. Pierre, "Specifying Outcomes in Nutrition Evaluation," *Journal of Nutrition Education*, Vol. 14, No. 2, 1982, pp. 49-51.

to difficulties in collecting accurate program costs and benefit outcomes.

It is important to be aware of the comprehensiveness as well as real-world constraints of research design. Recipients of a nutrition education program, particularly under Federal auspices, cannot always be manipulated, nor can the environment be stringently controlled in a natural setting in order to conform to an experimental paradigm designed to eliminate extraneous variables.

USDA's Evaluation Efforts Expanded

In 1991, an Ad Hoc Committee appointed by the Human Nutrition Board of Scientific Counselors recommended that USDA's evaluation activities expand beyond descriptive and qualitative assessments to more quantitative assessments that would result in obtaining positive, measurable changes in target groups' nutrition-related knowledge, attitudes, and/or behavior. Although there were already some USDA evaluation activities in existence that sought quantitative assessments of effectiveness (such as EFNEP), the committee felt these efforts needed to be expanded. The committee cited a number of reasons why USDA agencies were not focusing more attention on quantitative/impact evaluations. In some instances, evaluation efforts were narrowly focused on operational measures, such as the number of clients contacted or brochures circulated. Other limitations cited were inadequate resources and staff expertise in communications and evaluation. The committee suggested that to obtain more measurable outcomes and perhaps alleviate some of the resource/expertise deficiencies, USDA agencies work together on delivery and evaluation of nutrition education.

USDA is expanding its efforts to address these concerns, resulting in improved coordination among agencies, the development of nutrition

education partnerships, and the creation of innovative interventions.

Improved Coordination

In 1994, USDA established the Center for Nutrition Policy and Promotion (CNPP) to help coordinate USDA's nutrition education efforts and to improve the nutritional health of Americans by conveying scientific research to consumers. CNPP has the major responsibilities for developing and evaluating dietary guidance materials and tools and for investigating techniques for effective nutrition communication.

Nutrition Education Partnerships

USDA agencies work together in nutrition education. Recently, FCS and the Cooperative State Research, Education, and Extension Service (CSREES) collaborated on 74 State projects for the development, delivery, and evaluation of unique community-based intensive nutrition education programs for needy participants in the WIC program. WIC participants received additional nutrition education from Extension personnel working in cooperation with WIC State and local agencies. Each State was required to perform an evaluation of its nutrition education effort. USDA's Economic Research Service (ERS) provided evaluation assistance for these State projects and will prepare a summary evaluation of the entire project.

Another joint effort by FCS, CSREES, and ERS is developing, conducting, and evaluating a nutrition education program designed especially for pregnant adolescents and young mothers who participate in the WIC program. Evaluation indices include nutrition knowledge, diet quality, and selected growth/health measures of the targeted individual and her infant.

Innovative Interventions

An increased emphasis in USDA to support the development, implementation, and evaluation of innovative nutrition intervention programs can be seen with other current projects as well. For example, FCS recently funded grants to nutrition education projects to enhance food stamp recipients' knowledge of nutrition and skills that contribute to nutritionally sound diets and a healthy lifestyle. These projects are to be designed to provide measurable behavioral outcomes. FCS also recently awarded funds to 10 organizations around the country to implement nutrition education projects within their communities. The groups receiving the funds developed projects aimed at providing nutrition education to participants in USDA's food-assistance programs. The awardees used a number of community outlets to reach food assistance recipients, such as grocery stores, health fairs, and childcare centers. USDA provided technical assistance and will synthesize the evaluation of the community projects.

Evaluation Efforts Will Continue, Partnerships Will Be Strengthened

Nutrition education is a process to give people knowledge based on nutrition science about the relationship between diet and health, and to help them make decisions regarding their eating practices by applying that knowledge to behavior. USDA plays a leading role in developing and implementing programs aimed at strengthening nutrition education efforts in the United States. Multiple factors affect food choices, all of which must be assessed if effective educational approaches and nutrition messages are to be developed for all segments of the population. Despite a number of factors that may contribute to the difficulty in

evaluating nutrition education intervention programs, evaluation is necessary.

To help address the difficulty in evaluating nutrition education interventions, FCS, for example, recently sponsored a competition for grants to develop improved methodology and measurement instruments to gauge nutrition education effectiveness. The CSREES EFNEP has developed an evaluation/reporting system that captures behavior change as related to dietary intakes, food resource management, food safety, and nutrition practices. It is a system that is being used nationwide by EFNEP and documents the positive impact of these programs. A soon-to-be-released version of this system will also be collecting perinatal data (such as weight gain of mother, birth weight of infant, and breastfeeding initiation and duration). Other features of the system will expand its usefulness in measuring impacts of food stamp family nutrition education programs and other nutrition education efforts in the cooperative extension system.

This emphasis on program evaluation can only be expected to increase in the future as efforts toward providing more effective nutrition education are coupled with constrained budgets. USDA has increased its emphasis on quantitative/impact evaluations. Innovative techniques for reaching diverse population groups and rural areas are being created, and there is more ef-

fort in improving cross-agency coordination to develop enhanced evaluation methodologies and educational materials. Nutrition education in the future will undoubtedly involve greater collaboration both within USDA as well as between USDA and other Federal departments.

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